

INFORMATION DISCLOSURE
STATEMENT BY APPLICANTATTY DOCKET NO.
TSRI 645.0SERIAL NO.
09/807,165APPLICANT
BarbasFILING DATE
10/16/1998GROUP
1653

U.S. PATENT DOCUMENTS

EXAM. INITIALS		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE

FOREIGN PATENT DOCUMENTS

EXAM. INITIALS		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION YES NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages)

cc	21	Rauscher, III, et al., "Binding of the Wilms' Tumor Locus Zinc Finger Protein to the EGR-1 Consensus Sequence", <u>Science</u> 250: 1259-1262 (1990)
	22	Nardelli, et al., "Base Sequence Discrimination by Zinc-Finger DNA-Binding Domains", <u>Nature</u> 349: 175-178 (1991)
	23	Theisen, et al., "Amino Acid Substitutions in the SPI Zinc Finger Domain Alter the DNA Binding Affinity to Cognate SPI Target Site", <u>Biochem. Biophys. Res. Commun.</u> 175: 333-338 (1991)
	24	Pavletich, et al., "Zinc Finger-DNA Recognition: Crystal Structure of a Zif268-DNA Complex at 2.1 Å", <u>Science</u> 252: 809-817 (1991)
	25	DiBello, et al., "The Drosophila Broad-Complex Encodes a Family of Related Proteins Containing Zinc Fingers", <u>Genetics</u> 129: 385-397 (1991)
	26	Ray, et al., "Repressor to Activator Switch by Mutations in the First Zn Finger of the Glucocorticoid Receptor: Is Direct DNA Binding Necessary", <u>Proc. Natl. Acad. Sci. USA</u> 88: 7086-7090 (1991)
	27	Agarwal, et al., "Stimulation of Transcript Elongation Requires both the Zinc Finger and RNA Polymerase II Binding Domains of Human TFIIS", <u>Biochemistry</u> 30: 7842-7851 (1991)
	28	Antao, et al., "A Thermodynamic Study of Unusually Stable RNA and DNA Hairpins", <u>Nucleic Acids Res.</u> 19: 5901-5905 (1991)
	29	Webster, et al., "Conversion of the E1A Cys ₄ Zinc Finger to a Nonfunctional His ₂ Cys ₂ Zinc Finger by a Single Point Mutation", <u>Proc. Natl. Acad. Sci. USA</u> 88: 9989-9993 (1991)
	30	Wilson, et al., "In Vivo Mutational Analysis of the NGFI-A Zinc Fingers", <u>J. Biol. Chem.</u> 267: 3718-3724 (1992)
	31	Thukral, et al., "Mutations in the Zinc Fingers of ADR1 that Change the Specificity of DNA Binding and Transactivation", <u>Mol. Cell. Biol.</u> 12: 2784-2792 (1992)
	32	Quigley, et al., "Complete Androgen Insensitivity Due to Deletion of Exon C of the Androgen Receptor Gene Highlights the Functional Importance of the Second Zinc Finger of the Androgen Receptor <i>In Vivo</i> ", <u>Mol. Endocrinol.</u> 6: 1103-1112 (1992)
	33	Barbas III, et al., "Semisynthetic Combinatorial Antibody Libraries: A Chemical Solution to the Diversity Problem", <u>Proc. Natl. Acad. Sci. USA</u> 89: 4457-4461 (1992)
	34	Hirst, et al., "Discrimination of DNA Response Elements for Thyroid Hormone and Estrogen is Dependent on Dimerization of Receptor DNA Binding Domains", <u>Proc. Natl. Acad. Sci. USA</u> 89: 5527-5531 (1992)
	35	Desjardais, et al., "Redesigning the DNA-Binding Specificity of a Zinc Finger Protein: A Data Base-Guided Approach", <u>PROTEINS: Structure, Function, and Genetics</u> 12: 101-104 (1992)
	36	Nardelli, et al., "Zinc Finger-DNA Recognition: Analysis of Base Specificity by Site-Directed Mutagenesis", <u>Nucleic Acids Res.</u> 20: 4137-4144 (1992)
	37	Crozier, et al., "Single Amino Acid Exchanges in Separate Domains of the Drosophila Serendipity 8 Zinc Finger Protein Cause Embryonic and Sex Biased Lethality", <u>Genetics</u> 131: 905-916 (1992)
cc	38	Qian, et al., "Two-Dimensional NMR Studies of the Zinc Finger Motif: Solution Structures and Dynamics of Mutant ZFY Domains Containing Aromatic Substitutions in the Hydrophobic Core", <u>Biochemistry</u> 31: 7463-7476 (1992)

KCCarbon

9-18-2006

39	Desjarlais, et al., "Toward Rules Regulating Zinc Finger Protein Sequences and DNA Binding Site Preferences", <u>Proc. Natl. Acad. Sci. USA</u> 89: 7345-7349 (1992)
40	Hayes, et al., "Locations of Contacts between Individual Zinc Fingers of <i>Xenopus laevis</i> Transcription Factor IIIA and the Internal Control Region of a 5S RNA Gene", <u>Biochemistry</u> 31: 11600-11605 (1992)
41	Jacobs, "Determination of the Base Recognition Positions of Zinc Fingers from Sequence Analysis", <u>EMBO J.</u> 11: 4507-4517 (1992)
42	Pabo, et al., "Transcription Factors: Structural Families and Principles of DNA Recognition", <u>Annu. Rev. Biochem.</u> 61: 1053-1095 (1992)
43	Solech, et al., "A Novel Zinc Finger Gene on Human Chromosome 1 qter that is Alternatively Spliced in Human Tissues and Cell Lines", <u>Am. J. Hum. Genet.</u> 52: 192-203 (1993)
44	Hoffman, et al., "Structures of DNA-Binding Mutant Zinc Finger Domains: Implications for DNA Binding", <u>Protein Sci.</u> 2: 951-965 (1993)
45	Bellefroid, et al., "Clustered Organization of Homologous KRAB Zinc-Finger Genes with Enhanced Expression in Human T Lymphoid Cells", <u>EMBO J.</u> 12: 1363-1374 (1993)
46	Yu, et al., "A Hairpin Ribozyme Inhibits Expression of Diverse Strains of Human Immunodeficiency Virus Type 1", <u>Proc. Natl. Acad. Sci. USA</u> 90: 6340-6344 (1993)
47	Rollins, et al., "Role of TFIIIA Zinc Fingers in Vivo: Analysis of Single-Finger Function in Developing <i>Xenopus</i> Embryos", <u>Mol. Cell. Biol.</u> 13: 4776-4783 (1993)
48	Julian, et al., "Replacement of His ²³ by Cys in a Zinc Finger of HIV-1 NC ₆ 7 Led to a Change in ¹ H NMR-Derived 3D Structure and to a Loss of Biological Activity", <u>FEBS</u> 331: 43-48 (1993)
49	Pavletich, et al., "Crystal Structure of a Five-Finger GLI-DNA Complex: New Perspectives on Zinc Fingers", <u>Science</u> 261: 1701-1707 (1993)
50	Fairall, et al., "The Crystal Structure of a Two Zinc-Finger Peptide Reveals an Extension to the Rules for Zinc-Finger/DNA Recognition", <u>Nature</u> 366: 483-487 (1993)
51	Rebar, et al., "Zinc Finger Phage: Affinity Selection of Fingers with New DNA-Binding Specificities", <u>Science</u> 263: 671-673 (1994)
52	Jamieson, et al., "In Vitro Selection of Zinc Fingers with Altered DNA-Binding Specificity", <u>Biochemistry</u> 33: 5689-5695 (1994)
53	Choo, et al., "Toward a Code for the Interactions of Zinc Fingers with DNA: Selection of Randomized Fingers Displayed on Phage", <u>Proc. Natl. Acad. Sci. USA</u> 91: 11163-11167 (1994)
54	Wu, et al., "Building Zinc Fingers by Selection: Toward a Therapeutic Application", <u>Proc. Natl. Acad. Sci. USA</u> 92: 344-348 (1995)
55	Taylor, et al., "Designing Zinc-Finger ADRI Mutants with Altered Specificity of DNA Binding to T in UAS1 Sequences", <u>Biochemistry</u> 34: 3222-3230 (1995)
56	Elrod-Erickson, et al., "Zif268 Protein-DNA Complex Refined at 1.6 Å: A Model System for Understanding Zinc Finger-DNA Interactions", <u>Structure</u> 4: 1171-1180 (1996)
57	Jamieson, et al., "A Zinc Finger Directory for High-Affinity DNA Recognition", <u>Proc. Natl. Acad. Sci. USA</u> 93: 12834-12839 (1996)
58	Houbavily, et al., "Co-crystal Structure of YY1 Bound to the Adeno-Associated Virus P5 Initiator", <u>Proc. Natl. Acad. Sci. USA</u> 93: 13577-13582 (1996)
59	Kim, et al., "A 2.2 Å Resolution Crystal Structure of a Designed Zinc Finger Protein Bound to DNA", <u>Nature Structural Biology</u> 3: 940-945 (1996)
60	Greisman, et al., "A General Strategy for Selecting High-Affinity Zinc Finger Proteins for Diverse DNA Target Sites", <u>Science</u> 275: 657-661 (1997)
61	Narayan, et al., "Structures of Zinc Finger Domains from Transcription Factor Sp1", <u>J. Biol. Chem.</u> 272: 7801-7809 (1997)
62	Liu, et al., "Design of Polydactyl Zinc-Finger Proteins for Unique Addressing within Complex Genomes", <u>Proc. Natl. Acad. Sci. USA</u> 94: 5525-5530 (1997)
63	Isalan, et al., "Synergy Between Adjacent Zinc Fingers in Sequence-Specific DNA Recognition", <u>Proc. Natl. Acad. Sci. USA</u> 94: 5617-5621 (1997)
64	Wuttke, et al., "Solution Structure of the First Three Zinc Fingers of TFIIIA Bound to the Cognate DNA Sequence: Determinants of Affinity and Sequence Specificity", <u>J. Mol. Biol.</u> 273: 183-206 (1997)
65	Elrod-Erickson, et al., "High Resolution Structures of Variant Zif268-DNA Complexes: Implications for Understanding Zinc Finger-DNA Recognition", <u>Structure</u> 6: 451-464 (1998)
66	Nolte, et al., "Differing Roles for Zinc Fingers in DNA Recognition: Structure of a Six-Finger Transcription Factor IIIA Complex", <u>Proc. Natl. Acad. Sci. USA</u> 95: 2938-2943 (1998)

K.C. Carlson 9-18-2006

<i>Yee</i>	67	Isalan, et al., "Comprehensive DNA Recognition through Concerted Interactions from Adjacent Lysine Fingers", <u>Biochemistry</u> 37: 12026-12033 (1998)
EXAMINER	DATE CONSIDERED	
<i>KC Carlson</i>	<i>F</i>	9-18-2020

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if it is not in conformance and not considered. Include copy of this form with next communication to Applicant.

10/6

FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICEINFORMATION DISCLOSURE
STATEMENT BY APPLICANTATTY D IET NO.
TSRI 645.0SERIAL NO.
09/175,941

09/1807665-

APPLICANT
BarbasFILING DATE
10/16/1998GROUP
1653

U.S. PATENT DOCUMENTS

EXAM. INITIALS		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
KCC	1	5,789,538	8/4/1998	Edward J. Rebar, Carl O. Pablo			
	2	5,639,592	6/17/1997				
	3	5,597,693	1/28/1997	Evans, et al.			
	4	5,403,484	4/4/1995	Ladner, et al.			
	5	5,376,530	12/27/1994	De The, et al.			
	6	5,350,840	9/27/1994	Call, et al.			
	7	5,340,739	8/23/1994	Stevens, et al.			
	8	5,324,818	6/28/1994	Nabel, et al.			
	9	5,324,638	6/28/1994	Tao, et al.			
	10	5,243,041	9/7/1993	Fernandez-Pol			
	11	5,096,815	3/13/1992	Ladner, et al.			
KCC	12	4,990,607	2/5/1991	Katagiri, et al.			

FOREIGN PATENT DOCUMENTS

EXAM. INITIALS		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION YES NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages)

KCC	13	Celenza, et al., "A Yeast Gene That is Essential for Release from Glucose Repression Encodes a Protein Kinase", <u>Science</u> 233: 1175-1180 (1986)
	14	Singh, et al., "Molecular Cloning of an Enhancer Binding Protein: Isolation by Screening of an Expression Library with a Recognition Site DNA", <u>Cell</u> 52: 415-423 (1988)
	15	Kinzler, et al., "The GLI Gene is a Member of the Kruppel Family of Zinc Finger Proteins", <u>Nature</u> 332: 371-374 (1988)
	16	Debs, et al., "Regulation of Gene Expression <i>in Vivo</i> by Liposome-Mediated Delivery of a Purified Transcription Factor", <u>J. Biol. Chem.</u> 265: 10189-10192 (1990)
	17	Kudla, et al., "The Regulatory Gene <i>areA</i> Mediating Nitrogen Metabolite Repression in <i>Aspergillus nidulans</i> . Mutations Affecting Specificity of Gene Activation Alter a Loop Residue of a Putative Zinc Finger", <u>EMBO J.</u> 9: 1355-1364 (1990)
	18	Wright, et al., "Expression of a Zinc Finger Gene in HTLV-I- and HTLV-II-Transformed Cells", <u>Science</u> 248: 588-591 (1990)
	19	Bergquist, et al., "Loss of DNA-Binding and New Transcriptional <i>trans</i> -activation Function in Polyomavirus Large T-antigen with Mutation of Zinc Finger Motif", <u>Nucleic Acids Res.</u> 18: 2715-2720 (1990).
KCC	20	South, et al., "The Nucleocapsid Protein Isolated from HIV-1 Particles Binds Zinc and Forms Retroviral-Type Zinc Fingers", <u>Biotechnology</u> 9: 7786-7789 (1990)

EXAMINER	DATE CONSIDERED
<i>K. Carlson</i>	9-18-2006

CARMER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if in conformance and not considered. Include copy of this form with next communication to Applicant.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

ATTY L KET NO.
TSRI 645.0

TSRI 645-0

SERIAL NO.

—CONTINUE

~~09/1807665~~

FOREIGN PATENT DOCUMENTS

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages)

EXAMINER

DATE CONSIDERED

KC Carlson

9-18-2026

AMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if in conformance and not considered. Include copy of this form with next communication to Applicant.

3 of 6

ATTY DCKET NO.
TSA 15.2SERIAL NO.
09/807665INFORMATION DISCLOSURE
STATEMENT BY APPLICANTAPPLICANT
BarbasFILING DATE
1/28/2000GROUP
653

U.S. PATENT DOCUMENTS

EXAM. INITIALS		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
XCC	1	5,789,538	8/4/1998	Edward J. Rebar; Carl O. Pablo			
XCC	2	5,223,409	6/1993	Ladner, et al.			
XCC	3	5,096,815	3/1992	Ladner, et al.			

FOREIGN PATENT DOCUMENTS

EX. INITIALS		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION YES NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages)

XCC	4	Miller, et al., "Repetitive Zinc-Binding Domains in the Protein Transcription Factor IIIA from Xenopus Oocytes". <u>EMBO J.</u> 4: 1609-1614 (1985)
	5	Sadowski, et al., "GAL4-VP16 is an Unusually Potent Transcriptional Activator". <u>Nature</u> 335: 563-564 (1988)
	6	Lee, et al., "Three-Dimensional Solution Structure of a Single Zinc Finger DNA-Binding Domain". <u>Science</u> 245: 635-637 (1989)
	7	Pavletich, et al., "Zinc Finger-DNA Recognition: Crystal Structure of a Zif268-DNA Complex at 2.1 Å". <u>Science</u> 252: 809-817 (1991)
	8	Barbas, et al., "Assembly of Combinatorial Antibody Libraries on Phage Surfaces: The Gene III Site", <u>Proc. Natl. Acad. Sci. USA</u> 88: 7978-7982 (1991)
	9	Pavletich, et al., "Crystal Structure of a Five-Finger GLI-DNA Complex: New Perspectives on Zinc Fingers". <u>Science</u> 261: 1701-1707 (1993)
	10	Rebar, et al., "Zinc Finger Phage: Affinity Selection of Fingers with New DNA-Binding Specificities". <u>Science</u> 263: 671-673 (1994)
	11	Wu, et al., "Building Zinc Fingers by Selection: Toward a Therapeutic Application". <u>Proc. Natl. Acad. Sci. USA</u> 92: 344-348 (1995)
	12	Elrod-Erickson, et al., "Zif268 Protein-DNA Complex Refined at 1.6 Å: A Model System for Understanding Zinc Finger-DNA Interactions". <u>Structure</u> 4: 1171-1180 (1996)
	13	Kim, et al., "A 2.2 Å Resolution Crystal Structure of a Designed Zinc Finger Protein Bound to DNA". <u>Nature Structural Biology</u> 3: 940-945 (1996)
XCC	14	Greisman, et al., "A General Strategy for Selecting High-Affinity Zinc Finger Proteins for Diverse DNA Target Sites". <u>Science</u> 275: 657-661 (1997)

EXAMINER

KCCarlier

DATE CONSIDERED

9-18-2006

XAMINER Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

ATTY DOCKET NO.
TSRI 645.2

SERIAL NO.

INFORMATION DISCLOSURE
STATEMENT BY APPLICANTAPPLICANT
BarbasFILING DATE
1/28/2000

GROUP

U.S. PATENT DOCUMENTS

EXAM. INITIALS		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE

FOREIGN PATENT DOCUMENTS

EXAM. INITIALS		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION YES NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages)

<i>KCC</i>	15	Design of TATA Box-Binding Protein/Zinc Finger Fusions for Targeted Regulation of Gene Expression", <u>Proc. Natl. Acad. Sci. USA</u> 94: 3616-3620 (1997)
	16	Liu, et al., "Design of Polydactyl Zinc-Finger Proteins for Unique Addressing within Complex Genomes", <u>Proc. Natl. Acad. Sci. USA</u> 94: 5525-5530 (1997)
	17	Rader, et al., "Phage Display of Combinatorial Antibody Libraries", <u>Curr. Opin. Biotechnology</u> 8: 503-508 (1997)
	18	Kim, et al., "Transcriptional Repression by Zinc Finger Peptides", <u>J. Biol. Chem.</u> 272: 29795-29800 (1997)
	19	Elirod-Erickson, et al., "High-Resolution Structures of Variant Zif268-DNA Complexes: Implications for Understanding Zinc Finger-DNA Recognition", <u>Structure</u> 6: 451-464 (1998)
	20	Beerli, et al., "Toward Controlling Gene Expression at Will: Specific Regulation of the erbB-2/HER-2 Promoter by Using Polydactyl Zinc Finger Proteins Constructed from Modular Building Blocks", <u>Proc. Natl. Acad. Sci. USA</u> 95: 14628-14633 (1998)
<i>KCC</i>	21	Segal, et al., "Toward Controlling Gene Expression at Will: Selection and Design of Zinc Finger Domains Recognizing Each of the 5'-GNN-3' DNA Target Sequences", <u>Proc. Natl. Acad. Sci. USA</u> 96: 2758-2763 (1999)

EXAMINER

KCCarben

DATE CONSIDERED

9-18-2006

AMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if in conformance and not considered. Include copy of this form with next communication to Applicant.

OCT 6 106		ATTY D. / KET NO. TSRI 645.2	SERIAL NO. 89494,190- 07/807665
		APPLICANT Barbas	
		FILING DATE 1/28/2000	GROUP 1643 1643
<p style="text-align: center;">INFORMATION DISCLOSURE STATEMENT BY APPLICANT</p>			

U.S. PATENT DOCUMENTS

FOREIGN PATENT DOCUMENTS

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages)

- Gebelstein, et al., "A Novel Profile of Expressed Sequence Tags for Zinc Finger Encoding Genes from the Poorly Differentiated Exocrine Pancreatic Cell Line AR4IP". *Cancer Letters* 105: 225-231 (1996)

Liu, et al., "Design of Polydactyl Zinc Finger Proteins for Unique Addressing within Complex Genomes", *Proc. Natl. Acad. Sci. USA* 94: 5525-5530 (1997)

Ogawa, et al., "Enhanced Expression in Seminoma of Human Zinc Finger Genes Located on Chromosome 19", *Cancer Genet. Cytogenet.* 100: 36-42 (1998)

Cited or TDS/1449 # 2 of 6

XAMINER <u>KC Carlson</u>	DATE CONSIDERED 9-18-2006
------------------------------	------------------------------

AMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if in conformance and not considered. Include copy of this form with next communication to Applicant.

506

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY OR AGENT NO. TSRI 12	SERIAL NO. 09/494,190 09/807665
		APPLICANT Barbas	
		FILING DATE 01/28/00	GROUP 1653

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

NOV 16 2005

PATENT & TRADEMARK OFFICE

U.S. PATENT DOCUMENTS

FOREIGN PATENT DOCUMENTS

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages)

EXAMINER

KC Carlson

DATE CONSIDERED

9-18-2002

XANTINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

6 of 6

FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE				ATTY DOCKET NO. TSRI 645.1	SERIAL NO. 09/807665
				APPLICANT Barbas	
				FILING DATE 04/16/2001	GROUP 1645 1653
INFORMATION DISCLOSURE STATEMENT BY APPLICANT					

NOV 16 2005
U.S. PATENT & TRADEMARK OFFICE
LAPAB

U.S. PATENT DOCUMENTS

EXAM. INITIALS	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
Lee	US 2002/0081614 A1	06/27/2002	Case CC, Zhang L			

FOREIGN PATENT DOCUMENTS

EXAM. INITIALS	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION YES NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages)

EXAMINER

KC Carlson

DATE CONSIDERED

9-18-2006

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.